

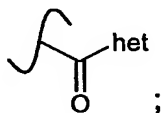
What is claimed is:

1. An inhibitor of fatty acid amide hydrolase represented by the following formula:



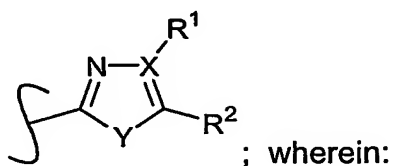
5 wherein A is an inhibition subunit, B is a linkage subunit, and C is a binding subunit and wherein:

10 the inhibition subunit A is an α -keto heterocyclic pharmacophore for inhibiting the fatty acid amide hydrolase, the α -keto heterocyclic pharmacophore being represented by the formula:



wherein "het" is represented by the following structure:

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X is selected from the group consisting of carbon and nitrogen;

Y is selected from the group consisting of oxygen and sulfur;

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R¹ and R² are radicals independently selected from the group consisting of hydrogen, C1-C6 alkyl, aromatic ring, and heteroaromatic ring;

with the following provisos:

R¹ and R² cannot both be hydrogen; and

if X is nitrogen, R¹ is absent;

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the linkage subunit **B** is a chain for linking the inhibition subunit **A** and

the binding subunit **C** and for enabling the binding subunit **C** to bind to the binding region on the fatty acid amide hydrolase, the chain having a linear skeleton of between 3 and 9 atoms selected from the group consisting of carbon, oxygen, sulfur, and nitrogen, the linear skeleton having a first end and a second end, the first end being covalently bonded to the α -keto group of **A**,

with the following proviso:

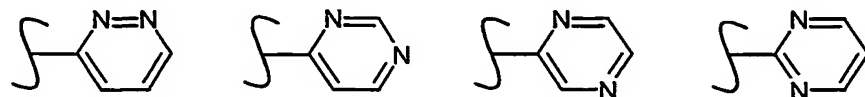
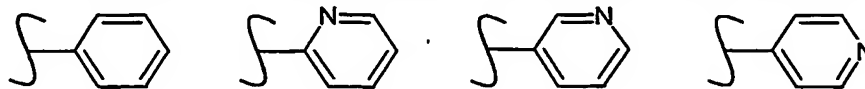
if the first end of said chain is an α -carbon with respect to the α -keto group of the inhibition subunit **A**, then the α -carbon is optionally mono- or bis-functionalized with substituents selected from the group consisting of fluoro, chloro, hydroxyl, alkoxy, trifluoromethyl, and alkyl; and

the binding subunit **C** is a π -bond containing radical having a π -unsaturation and being selected from a group consisting of aryl, alkenyl, alkynyl, and ring structures having at least one unsaturation, with or without one or more heteroatoms, the binding subunit **C** being covalently bonded to the second end of the linkage subunit **B**, the π -unsaturation within the π -bond containing radical being separated from the α -keto group of **A** by a sequence of no less than 3 and no more than 9 atoms bonded sequentially to one another, inclusive of the linear skeleton for enabling the π -unsaturation to bind to the binding region of the fatty acid amide hydrolase while the inhibition subunit **A** inhibits the fatty acid amide hydrolase;

with a proviso that **C** is optionally C1-C10 alkyl.

2. An inhibitor of fatty acid amide hydrolase according to claim 1 wherein R^1 and R^2 are radicals independently selected from the group consisting of hydrogen, C1-C6 alkyl, and radicals represented by the following structures:

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with the following provisos:

R^1 and R^2 cannot both be hydrogen; and

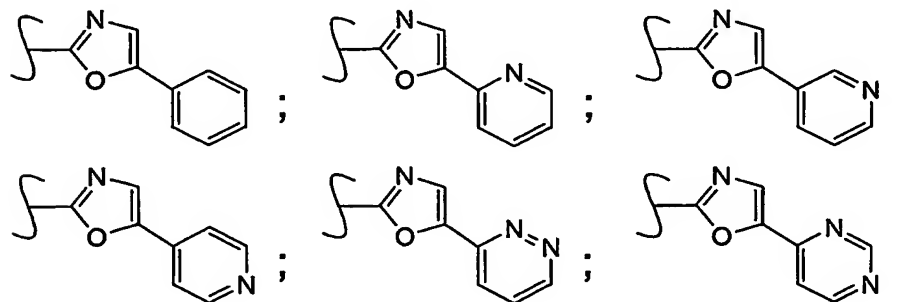
if X is nitrogen, R^1 is absent.

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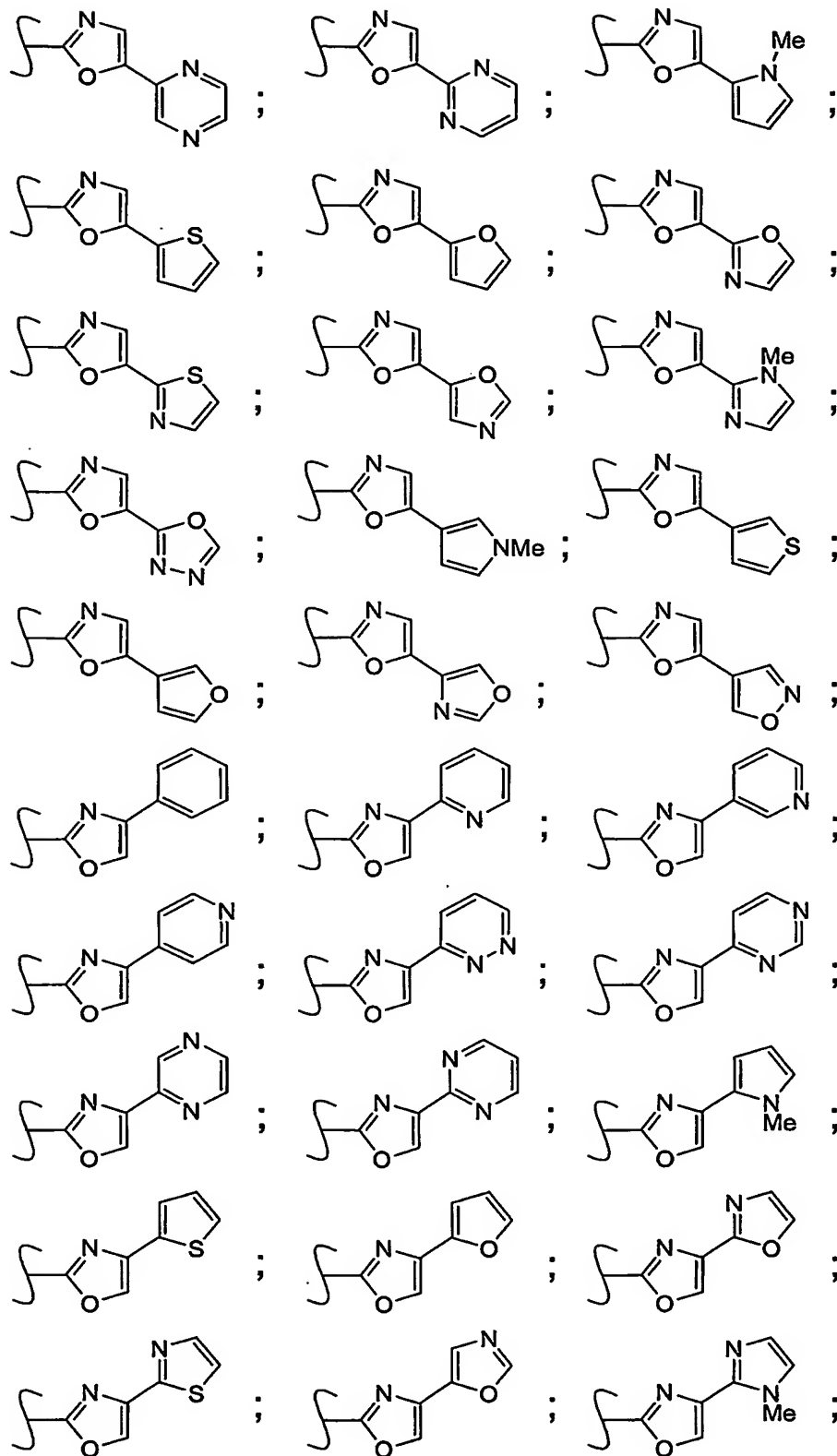
3. An inhibitor of fatty acid amide hydrolase according to claim 2 wherein:

"het" of the α -keto heterocyclic pharmacophore is selected from the following group:

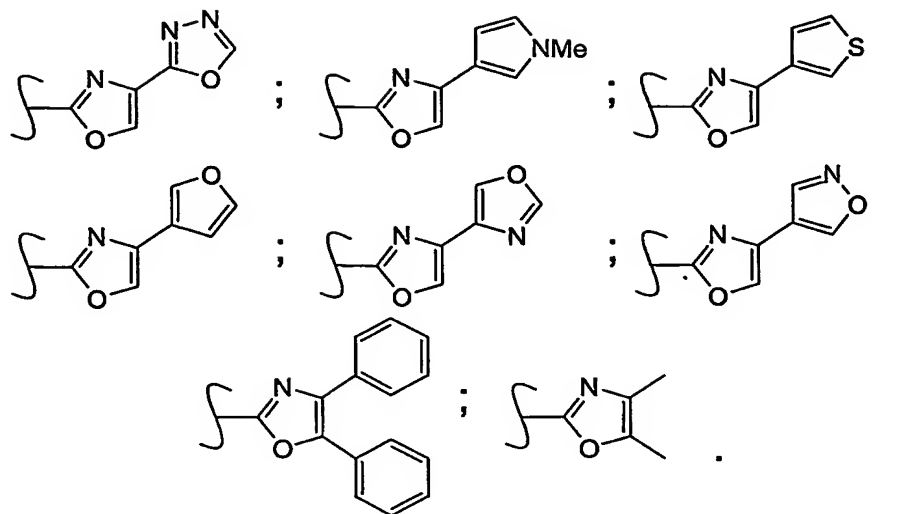
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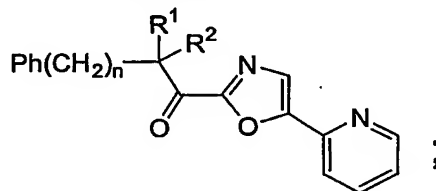
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4. An inhibitor of fatty acid amide hydrolase according to claim 3 wherein the inhibitor is represented by the following structure:



wherein

R^1 and R^2 are independently selected from the group consisting of hydrogen, fluoro, chloro, hydroxyl, alkoxy, trifluoromethyl, and alkyl; and
 "n" is an integer between 2 and 8.

5. A process for inhibiting a fatty acid amide hydrolase comprising the following step:

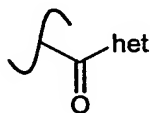
contacting the fatty acid amide hydrolase with an inhibiting concentration of an inhibitor represented by the following formula:

A-B-C

wherein **A** is an inhibition subunit, **B** is a linkage subunit, and **C** is a binding subunit and wherein:

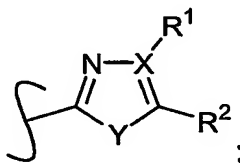
the inhibition subunit **A** is an α -keto heterocyclic pharmacophore for inhibiting the fatty acid amide hydrolase, the α -keto heterocyclic pharmacophore being represented by the formula:

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wherein "het" is represented by the following structure:

10



wherein:

X is selected from the group consisting of carbon and nitrogen;

15

Y is selected from the group consisting of oxygen and sulfur;

wherein R^1 and R^2 are radicals independently selected from the group consisting of hydrogen, C1-C6 alkyl, aromatic ring, and heteroaromatic ring;

20

with the following provisos:

R^1 and R^2 cannot both be hydrogen; and
if **X** is nitrogen, R^1 is absent;

the linkage subunit **B** is a chain for linking the inhibition subunit **A** and

25

the binding subunit **C** and for enabling the binding subunit **C** to bind to the binding region on the fatty acid amide hydrolase which the inhibition subunit **A** simultaneously inhibits the fatty acid amide hydrolase, the chain having a linear skeleton of between 3 and 9 atoms selected from the group consisting of carbon, oxygen, sulfur, and nitrogen, the linear skeleton having a first end and a second end, the first end being covalently bonded to the α -keto group of **A**,

30

with the following proviso:

if the first end of said chain is an α -carbon with respect to the α -keto group of the inhibition subunit **A**, then the α -carbon is optionally mono- or bis-functionalized with substituents selected from the group consisting of fluoro, chloro, hydroxyl, alkoxy, trifluoromethyl, and alkyl; and

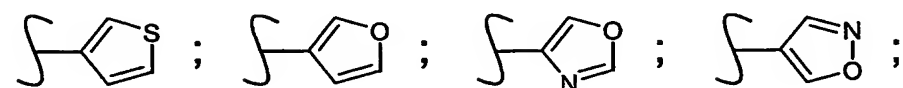
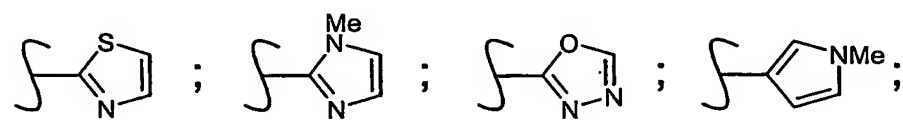
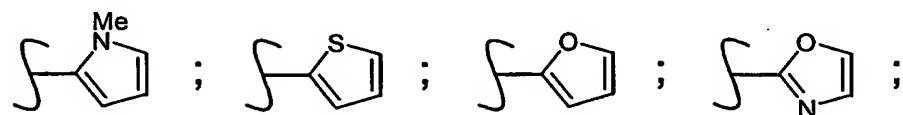
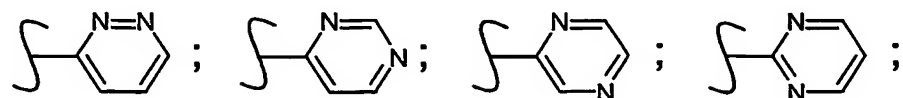
the binding subunit **C** is a π -bond containing radical having a π -unsaturation and being selected from a group consisting of aryl, alkenyl, alkynyl, and ring structures having at least one unsaturation, with or without one or more heteroatoms, the binding subunit **C** being covalently bonded to the second end of the linkage subunit **B**, the π -unsaturation within the π -bond containing radical being separated from the α -keto group of **A** by a sequence of no less than 3 and no more than 9 atoms bonded sequentially to one another, inclusive of the linear skeleton for enabling the π -unsaturation to bind to the binding region of the fatty acid amide hydrolase while the inhibition subunit **A** inhibits the fatty acid amide hydrolase;

with a proviso that **C** is optionally C1-C10 alkyl;

whereby, upon contacting the fatty acid amide, the binding subunit **C** binds to the binding region of the fatty acid amide hydrolase for enhancing the inhibition of the fatty acid amide hydrolase.

6. A process according to claim 5 wherein R^1 and R^2 are radicals independently selected from the group consisting of hydrogen, C1-C6 alkyl, and radicals represented by the following structures:

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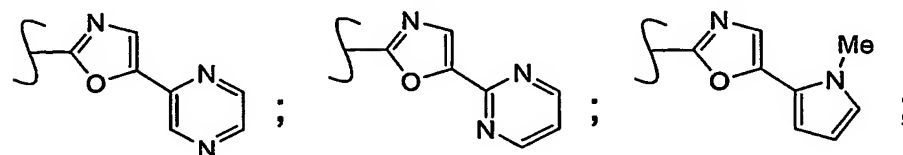
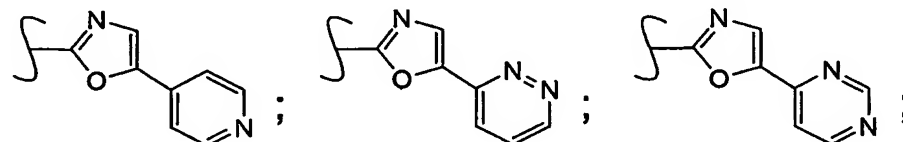
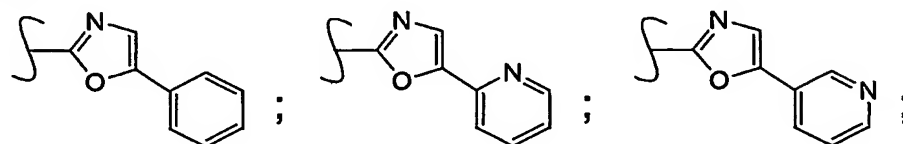
with the following provisos:

R^1 and R^2 cannot both be hydrogen; and

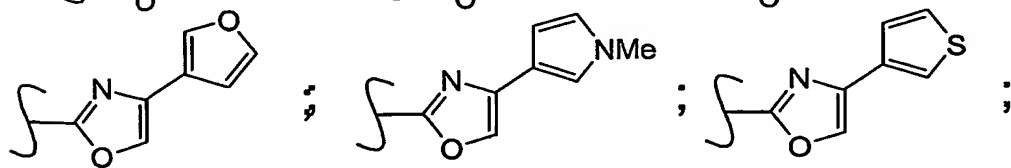
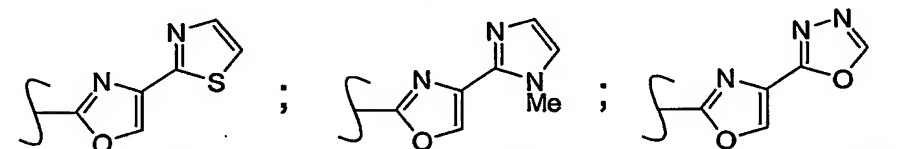
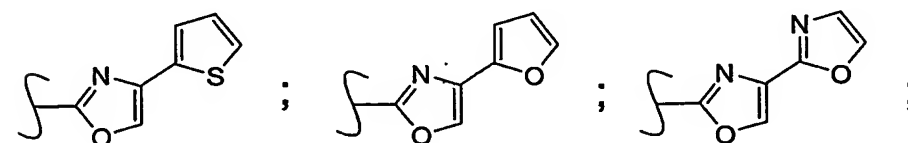
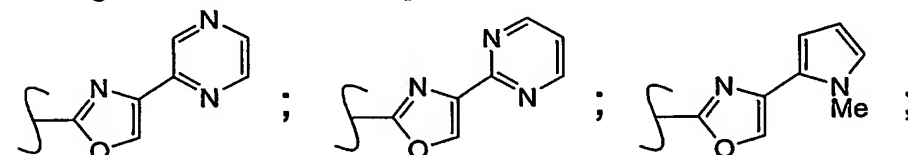
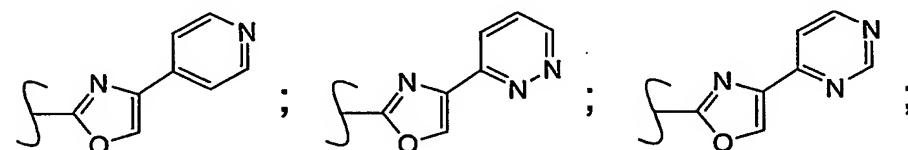
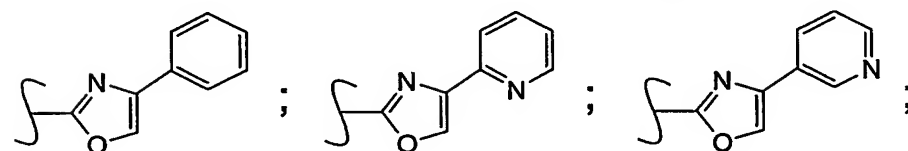
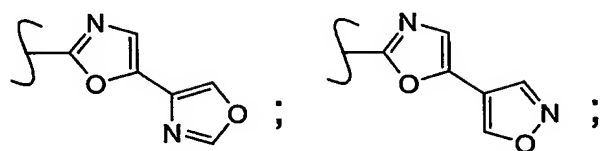
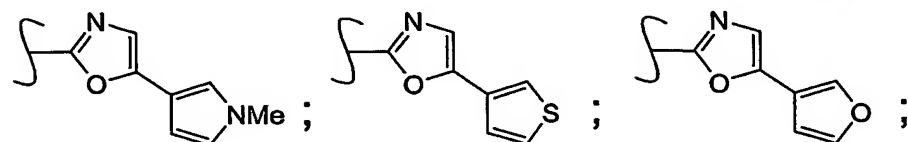
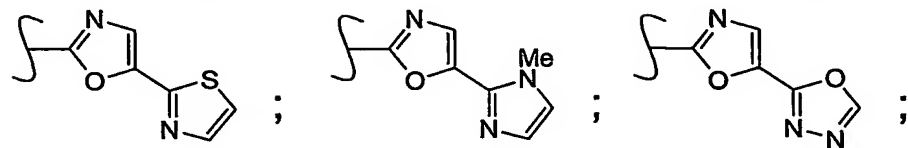
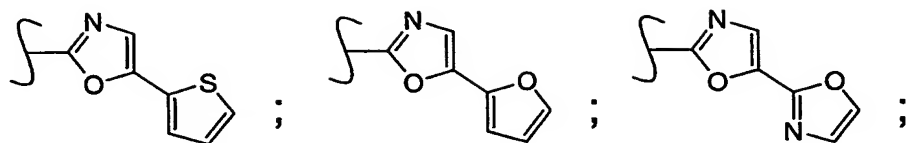
if X is nitrogen, R^1 is absent.

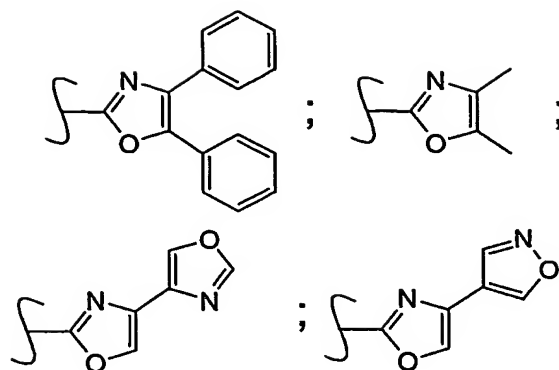
7. A process according to claim 6 wherein:

"het" of the α -keto heterocyclic pharmacophore is selected from the following group:

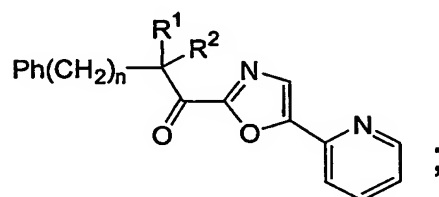


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8. A process according to claim 7 wherein the inhibitor is represented by the following structure:



wherein

R^1 and R^2 are independently selected from the group consisting of
hydrogen, fluoro, chloro, hydroxyl, alkoxy, trifluoromethyl, and alkyl;
and

"n" is an integer between 2 and 8.